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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/698,736	10/26/2000	Shahram Mostafazadeh	NSC1P194/P04836	7520

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EXAMINER
THAI, LUAN C

ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 04/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/698,736	Applicant(s) MOSTAFAZADEH, SHAHRAM
	Examiner Luan Thai	Art Unit 2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election *without traverse* of group II, claims 11-20 in Paper No. 4 is acknowledged.

Claims 1-10 have been canceled (paper No. 4).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara (6,358,778) in view of Glenn (6,247,229).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 11-14, Shinohara teaches (specifically see figures 4A-4C, Col. 5, lines 34+ and Col. 6, lines 1+) a method for packaging integrated circuits, comprising: providing a lead frame (1-2) of conductive material with a plurality of lead posts 2 and a connecting sheet 1 connecting the plurality of lead posts 2; electrically and mechanically attaching first die 4 with a conductive side of the die facing the plurality of lead posts of the lead frame, wherein the step of attaching die 4 to the lead frame comprises placing a conductive epoxy 12

between conductive pads on the die and the lead posts 2; and encapsulating the die with an encapsulating material 7. The method further comprises the step of removing the connecting sheet 1 to electrically isolated the plurality of lead posts from each other (figures 3A-4B, Col. 6, lines 1+). Shinohara does not disclose the method for forming a plurality of chip packages including the step of singulating the packages.

Glenn while related to a similar semiconductor packages design teaches (see specifically figures 2-13) a method of forming a plurality chip packages comprising: a step of attaching a plurality of first dice 28 to the lead frame 20 and electrically connected the dice 28 to the lead posts 24; encapsulating the plurality of dice with an encapsulating material 32 (Col. 5, lines 30+) and singulating the encapsulated first dice (Col. 6, lines 4+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Glenn's teachings to Shinohara's method by forming the encapsulated array and then separating individual packages in order to increase the product quantity and reduce the product cost.

4. Claims 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara (6,358,778) in view of Glenn (6,247,229) and further in view of Nakashima et al. (5,075,760).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claim 15, the proposed method of Shinohara and Glenn teaches all the steps of the claimed invention as detailed above except for the step of testing the integrated circuit packages before the step of singulation.

Nakashima et al. while related to a similar method of making integrated circuit packages teach the step of package testing being performed before the step of singulation (Col. 4, lines 25+, figures 1-10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Nakashimat et al.'s teachings to the proposed method of Shinohara and Glenn in order to perform the testing step before the step of singulation.

The further citations of claims 16-19 would have been obvious for the similar reasons set forth in the discussion of claims 11-14 above.

5. Claim 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara (6,358,778) in view of Glenn (6,247,229) and further in view of Wang et al. (6,258,626).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claim 20, the proposed method of Shinohara and Glenn teaches all the steps of the claimed invention as detailed above except for the step of attaching a plurality of second dice to the plurality of first dice, wherein each second die has a conductive side and a side opposite the conductive side, wherein the side opposite the conductive side of each second die is connected to

a side opposite the conductive side of the first die, and wherein wires are bonded conductive pads of second dice to lead posts.

Wang et al. while related to a similar method of making integrated circuit packages teach (figures 1-8, specifically see figures 3-8) a method of making a stacked chip package comprising a step of attaching a first die 110 to the lead posts 124, wherein the first die 110 is flip-chip bonded to the lead posts 124; back-to-back attaching a second die 130 to the first die 110, wherein wires 132 are bonded the conductive pads on the conductive side of the second die 130 to the lead posts 122. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Wang et al.'s teachings to the proposed method of Shinohara and Glenn by back-to-back attaching a plurality of second dice to the plurality of first dice, wherein wires are used to electrically connect the conductive pads on the conductive side of the second die to the lead posts of the lead frame in order to form stacked chip packages.

5. Tamaki et al.(6,157,080) also teach a process of making a stacked chip package identical to Wang et al.'s process; therefore, claim **20** is also rejected under 35 U.S.C. 103(a) as being unpatentable over Shinohara (6,358,778) in view of Glenn (6,247,229) and further in view of Tamaki et al. for the similar reasons detailed above.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is (703) 308-1211. The examiner can normally be reached on 7:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Luan Thai
March 28, 2002

DAVID L. TALBOTT
PRIMARY EXAMINER
ART UNIT 2827